

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method for creating a graphical program which performs hardware register accesses in a hardware device, wherein the method operates in a computer including a display screen and a user input device, the method comprising:

displaying on the screen a register access node in the graphical program in response to user input; and

configuring the register access node to access one or more hardware registers of the hardware device, wherein said configuring includes accessing a description of the hardware device for information regarding the one or more hardware registers of the hardware device;

wherein, during execution of the graphical program, the register access node is operable to access the one or more hardware registers of the hardware device based on the information.

2. (Currently Amended) The method of claim 1, wherein said configuring the register access node includes:

displaying a list of hardware registers; and

receiving user input to select one or more of the hardware registers from the list of hardware registers.

3. (Currently Amended) The method of claim 1, further comprising:

storing the description of the hardware device in the computer;

wherein the register access node uses the description of the hardware device to access hardware registers of the hardware device during execution of the graphical program.

4. (Currently Amended) The method of claim 3,

wherein said configuring the register access node to access one or more hardware registers of the hardware device comprises configuring the register access node to access selected hardware registers described in the description of the hardware device.

5. (Currently Amended) The method of claim 3, wherein the description includes mnemonic names of hardware registers;

wherein said configuring the register access node includes:

displaying a list of the mnemonic names of hardware registers on the display; and

receiving user input selecting one or more of the mnemonic names of hardware registers for access.

6. (Currently Amended) The method of claim 5, wherein the description further includes mnemonic names of fields in the hardware registers;

wherein said configuring the register access node includes:

displaying a list of the mnemonic names of fields in the hardware registers on the display; and

receiving user input selecting one or more of the mnemonic names of fields in the hardware registers for access.

7. (Original) The method of claim 1, wherein said configuring the register access node comprises:

displaying an icon on the graphical program which references register access node configuration information; and

connecting the icon to the register access node.

8. (Original) The method of claim 7, wherein the icon is a hardware open node.

9. (Currently Amended) The method of claim 1, wherein said register access node comprises one or more input terminals, the method further comprising:

configuring the one or more input terminals to write to a hardware register of the hardware device.

10. (Currently Amended) The method of claim 1, wherein said register access node comprises one or more output terminals, the method further comprising:

configuring the one or more output terminals to read a hardware register of the hardware device.

11. (Original) The method of claim 1, further comprising:

displaying on the screen a first node in response to user input, wherein the first node references the hardware device; and

connecting the first node to the register access node, wherein said connecting provides the register access node with information regarding the hardware device.

12. (Previously Presented) The method of claim 11, wherein the first node is a hardware refnum node which references the description of the hardware device.

13. (Original) The method of claim 11, wherein said connecting the first node to the register access node includes displaying on the screen a wire connecting the first node to the register access node.

14. (Currently Amended) The method of claim 1, further comprising:

constructing execution instructions in response to the graphical program, wherein the execution instructions are executable to access hardware registers of the hardware device.

15. (Currently Amended) The method of claim 14, further comprising:

executing said execution instructions, wherein the register access node accesses hardware registers of the hardware device during said executing.

16. (Currently Amended) The method of claim 1, wherein the graphical program is operable to access hardware registers of the hardware device for performing instrumentation functions on an instrument.

17. (Currently Amended) A method for creating a graphical program which performs hardware register accesses in a hardware device, wherein the method operates in a computer including a display and a user input device, the method comprising:

storing a description of the hardware device;

displaying on the screen a first node in response to user input, wherein the first node references the description of the hardware device;

displaying on the screen a register access node in response to user input, wherein the register access node is operable to access the hardware device;

connecting the first node to the register access node in response to user input, wherein the first node is operable to provide the description of the hardware device to the register access node;

wherein the register access node receives the description, wherein the register access node is operable to access hardware registers of the hardware device during execution of the graphical program based on the description of the hardware device.

18. (Currently Amended) The method of claim 17, further comprising:

configuring the register access node to access selected hardware registers described in the description of the hardware device, wherein said configuring includes accessing the description of the hardware device for information regarding the selected hardware registers.

19. (Currently Amended) The method of claim 18, wherein said configuring the register access node includes:

displaying a list of hardware registers described in the description of the hardware device;

receiving user input to select one or more of the hardware registers from the list of hardware registers.

20. (Currently Amended) The method of claim 19, wherein the description includes mnemonic names of hardware registers;

wherein said configuring the register access node includes:

displaying a list of the mnemonic names of hardware registers on the display; and

receiving user input selecting one or more of the mnemonic names of hardware registers for access.

21. (Currently Amended) The method of claim 20, further comprising:

displaying selected mnemonic names of hardware registers on the display after said receiving user input selecting one or more of the mnemonic names of hardware registers for access.

22. (Currently Amended) The method of claim 20, wherein the description further includes mnemonic names of fields in the hardware registers;

wherein said configuring the register access node includes:

displaying a list of the mnemonic names of fields in the hardware registers on the display; and

receiving user input selecting one or more of the mnemonic names of fields in the hardware registers for access.

23. (Previously Presented) The method of claim 17, further comprising:

displaying on the screen a list of descriptions of available hardware devices;

selecting the description from the list of descriptions.

24. (Currently Amended) The method of claim 17, wherein said register access node comprises one or more input terminals, wherein, for each input terminal, the method further comprises:

configuring each input terminal to write to a hardware register of the hardware device.

25. (Currently Amended) The method of claim 17, wherein said register access node comprises one or more output terminals, wherein, for each output terminal, the method further comprises:

configuring said each output terminal to read a hardware register of the hardware device.

26. (Currently Amended) The method of claim 17, wherein receiving user input further comprises:

selecting a first hardware register from said list of hardware registers;
associating a first terminal of the register access node with said first hardware register;
selecting the first terminal as a read or a write terminal;
connecting the first terminal to a node in the graphical program; and
repeating the above steps for one or more hardware registers of the hardware device.

27. (Original) The method of claim 26, wherein the register access node is a growable node which may comprise a variable number of user selected terminals.

28. (Original) The method of claim 17, further comprising:
displaying a name of the hardware description on the register access node in response to connecting the first node to the register access node.

29. (Original) The method of claim 17, wherein the first node is a hardware open node.

30. (Original) The method of claim 29, further comprising:
displaying on the screen a hardware refnum node in response to user input, wherein the hardware refnum node references the description of the hardware device; and

connecting the hardware refnum node to the first node, wherein said connecting provides the first node with a reference to the description of the hardware device.

31. (Original) The method of claim 17, wherein the first node is a hardware refnum node which references the description of the hardware device.

32. (Original) The method of claim 17, wherein said connecting the first node to the register access node includes displaying on the screen a wire connecting the first node to the register access node.

33. (Currently Amended) The method of claim 17, further comprising:
constructing execution instructions in response to the graphical program, wherein the execution instructions are executable to access hardware registers of the hardware device.

34. (Original) The method of claim 33, further comprising:
executing said execution instructions, wherein the register access node accesses hardware registers of the hardware device during said executing.

35. (Currently Amended) The method of claim 17, wherein the graphical program is operable to access hardware registers of the hardware device for performing instrumentation functions on an instrument.

36. (Currently Amended) A method for creating a graphical program which performs hardware register accesses in a hardware device, wherein the method operates in a computer including a display and a user input device, the method comprising:

storing a description of the hardware device;
displaying on the screen a register access node in the graphical program in response to user input, wherein the register access node is operable to access the hardware device;

connecting an input of the register access node to receive the description of the hardware device in response to user input; and

configuring the register access node to access selected hardware registers described in the description of the hardware device in response to user input, wherein said configuring includes accessing the description of the hardware device for information regarding the selected hardware registers of the hardware device;

wherein the register access node is operable to access the selected hardware registers of the hardware device during execution of the graphical program based on the information.

37. (Currently Amended) A memory medium for performing hardware register accesses in a hardware device, the memory medium comprising program instructions executable by a processor to:

display on the screen a register access node in the graphical program in response to user input; and

configure the register access node to access one or more hardware registers of the hardware device, wherein, in configuring the register access node to access the one or more hardware registers of the hardware device, the program instructions are executable by the processor to access a description of the hardware device for information regarding the one or more hardware registers of the hardware device;

wherein, during execution of the graphical program, the register access node is operable to access the one or more hardware registers of the hardware device based on the information.

38. (Currently Amended) The memory medium of claim 37, wherein in performing said configuring the register access node, the program instructions are executable by the processor to:

display a list of hardware registers; and

receive user input to select one or more of the hardware registers from the list of hardware registers.

39. (Currently Amended) The memory medium of claim 37, further comprising program instructions executable by the processor to:

store the description of the hardware device in the computer;
wherein the register access node uses the description of the hardware device to access hardware registers of the hardware device during execution of the graphical program.

40. (Currently Amended) The memory medium of claim 39, wherein said configuring the register access node to access one or more hardware registers of the hardware device comprises configuring the register access node to access selected hardware registers described in the description of the hardware device.

41. (Original) The memory medium of claim 37, wherein said configuring the register access node comprises:

displaying an icon on the graphical program which references register access node configuration information; and
connecting the icon to the register access node in response to user input.

42. (Currently Amended) The memory medium of claim 37, further comprising program instructions executable by the processor to:

construct execution instructions in response to the graphical program, wherein the execution instructions are executable to access hardware registers of the hardware device.

43. (Currently Amended) A system for performing hardware register accesses in a hardware device, the system comprising:

a computer including a processor coupled to a memory; and
a hardware device coupled to the computer;
wherein the processor is operable to execute program instructions stored in the memory to:

display on the screen a register access node in a graphical program in response to user input; and

configure the register access node to access one or more hardware registers of the hardware device, wherein, in configuring the register access node to access the one or more hardware registers of the hardware device, the processor is operable to execute the program instructions to access a description of the hardware device for information regarding the one or more hardware registers of the hardware device;

wherein, during execution of the graphical program, the register access node is operable to access the one or more hardware registers of the hardware device based on the information.

44. (Currently Amended) The system of claim 43, wherein in performing said configuring the register access node, the processor is operable to execute program instructions to:

display a list of hardware registers; and
receive user input to select one or more of the hardware registers from the list of hardware registers.

45. (Currently Amended) The system of claim 43, wherein the processor is further operable to execute program instructions stored in the memory to:

store the description of the hardware device;
wherein the register access node uses the description of the hardware device to access hardware registers of the hardware device during execution of the graphical program.

46. (Currently Amended) The system of claim 45,
wherein said configuring the register access node to access one or more hardware registers of the hardware device comprises configuring the register access node to access selected hardware registers described in the description of the hardware device.

47. (Currently Amended) The system of claim 43, wherein the processor is further operable to execute program instructions stored in the memory to:

construct execution instructions in response to the graphical program, wherein the execution instructions are executable to access hardware registers of the hardware device.

48. (New) A method for creating a graphical program which performs hardware register accesses in a hardware device, wherein the method operates in a computer including a display screen and a user input device, the method comprising:

displaying on the screen a register access node in the graphical program in response to user input; and

configuring the register access node to access one or more hardware registers of the hardware device;

wherein, during execution of the graphical program, the register access node is operable to access the one or more hardware registers of the hardware device.